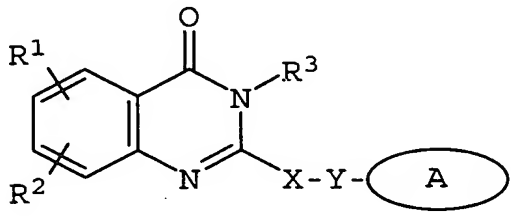
WHAT IS CLAIMED IS:

1. A method of disrupting leukocyte function comprising contacting leukocytes with a compound having a structure



wherein A is an optionally substituted monocyclic or bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b, and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO, SO_2, NH, O, C(=O), OC(=O), C(=O)O, and $NHC(=O)CH_2S$;

R^1 and R^2, independently, are selected from the group consisting of hydrogen, C_{1-6}alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}alkyleneN(R^a)_2$, NO_2, OR^a, CF_3, OCF_3, $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, $arylOR^b$, Het, $NR^aC(=O)C_{1-3}alkyleneC(=O)OR^a$, $arylOC_{1-3}$-$alkyleneN(R^a)_2$, $arylOC(=O)R^a$, $C_{1-4}alkyleneC(=O)OR^a$, $OC_{1-4}alkyleneC(=O)OR^a$, $C_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^a$, $C(=O)NR^aSO_2R^a$, $C_{1-4}alkyleneN(R^a)_2$, $C_{2-6}alkenyleneN(R^a)_2$, $C(=O)NR^aC_{1-4}alkyleneOR^a$, $C(=O)NR^aC_{1-4}alkyleneHet$, OC_{2-4}-$alkyleneN(R^a)_2$, $OC_{1-4}alkyleneCH(OR^b)CH_2N(R^a)_2$, OC_{1-4}alk-

yleneHet, OC_{2-4}alkyleneOR^a, OC_{2-4}alkyleneNR^{a}C(=O)OR^a, NR^{a}C$_{1-4}$alkyleneN(R^a)$_2$, NR^{a}C(=O)R^a, NR^{a}C(=O)N(R^a)$_2$, N(SO_2C_{1-4}alkyl)$_2$, NR^a(SO_2C_{1-4}alkyl), SO_2N(R^a)$_2$, OSO_2CF_3, C_{1-3}alkylenearyl, C_{1-4}alkyleneHet, C_{1-6}alkyleneOR^b, C_{1-3}alkyleneN(R^a)$_2$, C(=O)N(R^a)$_2$, NHC(=O)C_1-C_3alkylenearyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, arylOC_{1-3}alkyleneN(R^a)$_2$, arylOC(=O)R^b, NHC(=O)C_{1-3}alkyleneC_{3-8}heterocycloalkyl, NHC(=O)C_{1-3}alkyleneHet, OC_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^b, C(=O)C_{1-4}alkyleneHet, and NHC(=O)haloC_{1-6}alkyl;

or R^1 and R^2 are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^3 is selected from the group consisting of optionally substituted hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-4}alkylenecycloalkyl, C_{2-6}alkenyl, C_{1-3}alkylenearyl, arylC_{1-3}alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N(R^a)$_2$, C(=S)N(R^a)$_2$, SO_2R^a, SO_2N(R^a)$_2$, S(=O)R^a, S(=O)N(R^a)$_2$, C(=O)NR^{a}C$_{1-4}$alkyleneOR^a, C(=O)NR^{a}C$_{1-4}$alkyleneHet, C(=O)C_{1-4}alkylenearyl, C(=O)C_{1-4}alkyleneheteroaryl, C_{1-4}alkylenearyl substituted with one or more of SO_2N(R^a)$_2$, N(R^a)$_2$, C(=O)OR^a, NR^aSO_2CF_3, CN, NO_2, C(=O)R^a, OR^a, C_{1-4}alkyleneN(R^a)$_2$, and OC_{1-4}alkyleneN(R^a)$_2$, C_{1-4}alkyleneheteroaryl, C_{1-4}alkyleneHet, C_{1-4}alkyleneC(=O)C_{1-4}alkylenearyl, C_{1-4}alkyleneC(=O)C_{1-4}alkyleneheteroaryl, C_{1-4}alkyleneC(=O)Het, C_{1-4}alkyleneC(=O)N(R^a)$_2$, C_{1-4}alkyleneOR^a, C_{1-4}alkyleneNR^{a}C(=O)R^a, C_{1-4}alkyleneOC_{1-4}alkyleneOR^a, C_{1-4}alkyleneN(R^a)$_2$, C_{1-4}alkyleneC(=O)OR^a, and C_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocyclo-

alkyl, C_{1-3}alkyleneN(R^c)$_2$, aryl, arylC_{1-3}alkyl, C_{1-3}alkylenearyl, heteroaryl, heteroarylC_{1-3}alkyl, and C_{1-3}alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^b is selected from the group consisting of hydrogen, C_{1-6}alkyl, heteroC_{1-3}alkyl, C_{1-3}alkyleneheteroC$_{1-3}$alkyl, arylheteroC_{1-3}alkyl, aryl, heteroaryl, arylC_{1-3}alkyl, heteroarylC_{1-3}alkyl, C_{1-3}alkylenearyl, and C_{1-3}alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, and optionally substituted with C_{1-4}alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts and solvates,

in an amount sufficient to inhibit phosphatidylinositol 3-kinase delta activity in said leukocytes.

2. The method according to claim 1 wherein the compound is selected from the group consisting of

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-6,7-dimethoxy-3H-quinazolin-4-one

2-(6-aminopurin-o-ylmethyl)-6-bromo-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-o-ylmethyl)-3-(2-chlorophenyl)-7-fluoro-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-6-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-fluoro-3H-quinazolin-4-one

2-(6-aminopurin-o-ylmethyl)-5-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-methyl-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-8-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-biphenyl-2-yl-5-chloro-3H-quinazolin-4-one

5-chloro-2-(9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-chloro-3-(2-fluorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-fluorophenyl)-3H-quinazolin-4-one

3-biphenyl-2-yl-5-chloro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

5-chloro-3-(2-methoxyphenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-fluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6,7-dimethoxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

6-bromo-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-8-trifluoromethyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-benzo[g]quinazolin-4-one

6-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

8-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-7-fluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-7-nitro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6-hydroxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

5-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6,7-difluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6-fluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-isopropylphenyl)-5-methyl-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

3-(2-fluorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-o-tolyl-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-methoxy-phenyl)-3H-quinazolin-4-one

2-(2-amino-9*H*-purin-6-ylsulfanylmethyl)-3-cyclopropyl-5-methyl-3*H*-quinazolin-4-one

3-cyclopropylmethyl-5-methyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclopropylmethyl-5-methyl-3*H*-quinazolin-4-one

2-(2-amino-9*H*-purin-6-ylsulfanylmethyl)-3-cyclopropylmethyl-5-methyl-3*H*-quinazolin-4-one

5-methyl-3-phenethyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-(2-amino-9*H*-purin-6-ylsulfanylmethyl)-5-methyl-3-phenethyl-3*H*-quinazolin-4-one

3-cyclopentyl-5-methyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclopentyl-5-methyl-3*H*-quinazolin-4-one

3-(2-chloropyridin-3-yl)-5-methyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chloropyridin-3-yl)-5-methyl-3*H*-quinazolin-4-one

3-methyl-4-[5-methyl-4-oxo-2-(9*H*-purin-6-ylsulfanylmethyl)-4*H*-quinazolin-3-yl]-benzoic acid

3-cyclopropyl-5-methyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclopropyl-5-methyl-3*H*-quinazolin-4-one

5-methyl-3-(4-nitrobenzyl)-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

3-cyclohexyl-5-methyl-2-(9*H*-purin-6-ylsulfanyl-methyl)-3*H*-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclohexyl-5-methyl-3*H*-quinazolin-4-one

2-(2-amino-9*H*-purin-6-ylsulfanylmethyl)-3-cyclohexyl-5-methyl-3*H*-quinazolin-4-one

5-methyl-3-(E-2-phenylcyclopropyl)-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

3-(2-chlorophenyl)-5-fluoro-2-[(9*H*-purin-6-ylamino)-methyl]-3*H*-quinazolin-4-one

2-[(2-amino-9*H*-purin-6-ylamino)methyl]-3-(2-chloro-phenyl)-5-fluoro-3*H*-quinazolin-4-one

5-methyl-2-[(9*H*-purin-6-ylamino)methyl]-3-*o*-tolyl-3*H*-quinazolin-4-one

2-[(2-amino-9*H*-purin-6-ylamino)methyl]-5-methyl-3-*o*-tolyl-3H-quinazolin-4-one

2-[(2-fluoro-9*H*-purin-6-ylamino)methyl]-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

(2-chlorophenyl)-dimethylamino-(9*H*-purin-6-ylsulfan-ylmethyl)-3*H*-quinazolin-4-one

5-(2-benzyloxyethoxy)-3-(2-chlorophenyl)-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

6-aminopurine-9-carboxylic acid 3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl ester

N-[3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl]-2-(9*H*-purin-6-ylsulfanyl)-acetamide

2-[1-(2-fluoro-9*H*-purin-6-ylamino)ethyl]-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-[1-(9*H*-purin-6-ylamino)ethyl]-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(6-dimethylaminopurin-9-ylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-7-ylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-9-ylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(amino-dimethylaminopurin-9-ylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(2-amino-9*H*-purin-6-ylsulfanylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(4-amino-1,3,5-triazin-2-ylsulfanylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(7-methyl-7*H*-purin-6-ylsulfanylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(2-oxo-1,2-dihydro-pyrimidin-4-ylsulfanylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-purin-7-ylmethyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-purin-9-ylmethyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(9-methyl-9*H*-purin-6-ylsulfanylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(2,6-Diamino-pyrimidin-4-ylsulfanylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(5-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylsulfanylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(2-methylsulfanyl-9*H*-purin-6-ylsulfanylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(2-hydroxy-9*H*-purin-6-ylsulfanylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(1-methyl-1*H*-imidazol-2-ylsulfanyl-methyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-3-*o*-tolyl-2-(1*H*-[1,2,4]triazol-3-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-(2-amino-6-chloro-purin-9-ylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(6-aminopurin-7-ylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(7-amino-1,2,3-triazolo[4,5-*d*]pyrimidin-3-yl-methyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(7-amino-1,2,3-triazolo[4,5-*d*]pyrimidin-1-yl-methyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(6-amino-9*H*-purin-2-ylsulfanylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(2-amino-6-ethylamino-pyrimidin-4-ylsulfanyl-methyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(3-amino-5-methylsulfanyl-1,2,4-triazol-1-yl-methyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(5-amino-3-methylsulfanyl-1,2,4-triazol-1-ylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(6-methylaminopurin-9-ylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(6-benzylaminopurin-9-ylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

2-(2,6-diaminopurin-9-ylmethyl)-5-methyl-3-*o*-tolyl-3*H*-quinazolin-4-one

5-methyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3-*o*-tolyl-3*H*-quinazolin-4-one

3-isobutyl-5-methyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

N-{2-[5-Methyl-4-oxo-2-(9*H*-purin-6-ylsulfanyl-methyl)-4*H*-quinazolin-3-yl]-phenyl}-acetamide

5-methyl-3-(E-2-methyl-cyclohexyl)-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-[5-methyl-4-oxo-2-(9*H*-purin-6-ylsulfanylmethyl)-4*H*-quinazolin-3-yl]-benzoic acid

3-{2-[(2-dimethylaminoethyl)methylamino]phenyl}-5-methyl-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

3-(2-chlorophenyl)-5-methoxy-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

3-(2-chlorophenyl)-5-(2-morpholin-4-yl-ethylamino)-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

3-benzyl-5-methoxy-2-(9*H*-purin-6-ylsulfanylmethyl)-3*H*-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-fluoro-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

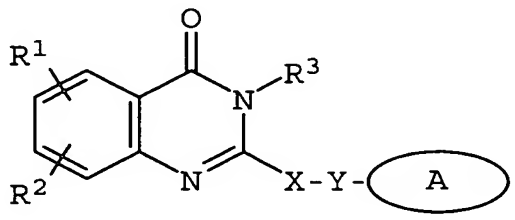
2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-{2-(2-(1-methylpyrrolidin-2-yl)-ethoxy)-phenyl}-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylamino-propoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-ynyloxyphenyl)-3H-quinazolin-4-one; and
2-{2-(1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-quinazolin-3-yl]-phenoxy}-acetamide.

3. A method of inhibiting kinase activity of a phosphatidylinositol 3-kinase delta polypeptide comprising contacting the polypeptide with a compound having a structure



wherein A is an optionally substituted monocyclic or bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b, and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO, SO_2, NH, O, C(=O), OC(=O), C(=O)O, and $NHC(=O)CH_2S$;

R^1 and R^2, independently, are selected from the group consisting of hydrogen, C_{1-6}alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}alkyleneN(R^a)_2$, NO_2, OR^a, CF_3, OCF_3, $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, $arylOR^b$, Het, $NR^aC(=O)C_{1-3}alkyleneC(=O)OR^a$, $arylOC_{1-3}$-$alkyleneN(R^a)_2$, $arylOC(=O)R^a$, $C_{1-4}alkyleneC(=O)OR^a$, $OC_{1-4}alkyleneC(=O)OR^a$, $C_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^a$, $C(=O)NR^aSO_2R^a$, $C_{1-4}alkyleneN(R^a)_2$, $C_{2-6}alkenyleneN(R^a)_2$, $C(=O)NR^aC_{1-4}alkyleneOR^a$, $C(=O)NR^aC_{1-4}alkyleneHet$, OC_{2-4}-$alkyleneN(R^a)_2$, $OC_{1-4}alkyleneCH(OR^b)CH_2N(R^a)_2$, OC_{1-4}-

alkyleneHet, OC_{2-4}alkyleneOR^a, OC_{2-4}alkyleneNR^{a}C(=O)OR^a, NR^{a}C$_{1-4}$alkyleneN(R^a)$_2$, NR^{a}C(=O)R^a, NR^{a}C(=O)N(R^a)$_2$, N(SO$_2$C$_{1-4}$alkyl)$_2$, NR^a(SO$_2$C$_{1-4}$alkyl), SO$_2$N(R^a)$_2$, OSO$_2$CF$_3$, C$_{1-3}$alkylenearyl, C$_{1-4}$alkyleneHet, C$_{1-6}$alkyleneOR^b, C$_{1-3}$alkyleneN(R^a)$_2$, C(=O)N(R^a)$_2$, NHC(=O)C$_1$-C$_3$alkylenearyl, C$_{3-8}$cycloalkyl, C$_{3-8}$heterocycloalkyl, arylOC$_{1-3}$alkyleneN(R^a)$_2$, arylOC(=O)R^b, NHC(=O)C$_{1-3}$alkyleneC$_{3-8}$heterocycloalkyl, NHC(=O)C$_{1-3}$alkyleneHet, OC$_{1-4}$alkyleneOC$_{1-4}$alkyleneC(=O)OR^b, C(=O)C$_{1-4}$alkyleneHet, and NHC(=O)haloC$_{1-6}$alkyl;

or R^1 and R^2 are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^3 is selected from the group consisting of optionally substituted hydrogen, C$_{1-6}$alkyl, C$_{3-8}$cycloalkyl, C$_{3-8}$heterocycloalkyl, C$_{1-4}$alkylenecycloalkyl, C$_{2-6}$alkenyl, C$_{1-3}$alkylenearyl, arylC$_{1-3}$alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N(R^a)$_2$, C(=S)N(R^a)$_2$, SO$_2$R^a, SO$_2$N(R^a)$_2$, S(=O)R^a, S(=O)N(R^a)$_2$, C(=O)NR^{a}C$_{1-4}$alkyleneOR^a, C(=O)NR^{a}C$_{1-4}$alkyleneHet, C(=O)C$_{1-4}$alkylenearyl, C(=O)C$_{1-4}$alkyleneheteroaryl, C$_{1-4}$alkylenearyl optionally substituted with one or more of halo, SO$_2$N(R^a)$_2$, N(R^a)$_2$, C(=O)OR^a, NR^{a}SO$_2$CF$_3$, CN, NO$_2$, C(=O)R^a, OR^a, C$_{1-4}$alkyleneN(R^a)$_2$, and OC$_{1-4}$alkyleneN(R^a)$_2$, C$_{1-4}$alkyleneheteroaryl, C$_{1-4}$alkyleneHet, C$_{1-4}$alkyleneC(=O)C$_{1-4}$alkylenearyl, C$_{1-4}$alkyleneC(=O)C$_{1-4}$alkyleneheteroaryl, C$_{1-4}$alkyleneC(=O)Het, C$_{1-4}$alkyleneC(=O)N(R^a)$_2$, C$_{1-4}$alkyleneOR^a, C$_{1-4}$alkyleneNR^{a}C(=O)R^a, C$_{1-4}$alkyleneOC$_{1-4}$alkyleneOR^a, C$_{1-4}$alkyleneN(R^a)$_2$, C$_{1-4}$alkyleneC(=O)OR^a, and C$_{1-4}$alkyleneOC$_{1-4}$alkyleneC(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C$_{1-6}$alkyl, C$_{3-8}$cycloalkyl, C$_{3-8}$heterocyclo-

alkyl, C_{1-3}alkyleneN$(R^c)_2$, aryl, arylC_{1-3}alkyl, C_{1-3}-alkylenearyl, heteroaryl, heteroarylC_{1-3}alkyl, and C_{1-3}alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

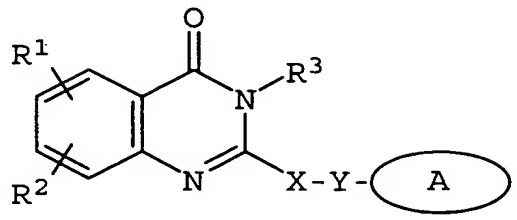
R^b is selected from the group consisting of hydrogen, C_{1-6}alkyl, heteroC_{1-3}alkyl, C_{1-3}alkyleneheteroC_{1-3}alkyl, arylheteroC_{1-3}alkyl, aryl, heteroaryl, arylC_{1-3}alkyl, heteroarylC_{1-3}alkyl, C_{1-3}alkylenearyl, and C_{1-3}alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, and optionally substituted with C_{1-4}alkyl or $C(=O)OR^a$;

and pharmaceutically acceptable salts and solvates thereof.

4. A compound having a general structural formula



wherein A is an optionally substituted monocyclic or bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b, and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO, SO_2, NH, O, C(=O), OC(=O), C(=O)O, and $NHC(=O)CH_2S$;

R^1 and R^2, independently, are selected from the group consisting of hydrogen, C_{1-6}alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}alkyleneN(R^a)_2$, NO_2, OR^a, CF_3, OCF_3, $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, $arylOR^b$, Het, $NR^aC(=O)C_{1-3}alkyleneC(=O)OR^a$, $arylOC_{1-3}alkyleneN(R^a)_2$, $arylOC(=O)R^a$, $C_{1-4}alkyleneC(=O)OR^a$, $OC_{1-4}alkyleneC(=O)OR^a$, $C_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^a$, $C(=O)NR^aSO_2R^a$, $C_{1-4}alkyleneN(R^a)_2$, $C_{2-6}alkenyleneN(R^a)_2$, $C(=O)NR^aC_{1-4}alkyleneOR^a$, $C(=O)NR^aC_{1-4}alkyleneHet$, $OC_{2-4}alkyleneN(R^a)_2$, $OC_{1-4}alkyleneCH(OR^b)CH_2N(R^a)_2$, $OC_{1-4}alkyleneHet$, $OC_{2-4}alkyleneOR^a$, $OC_{2-4}alkyleneNR^aC(=O)OR^a$, $NR^aC_{1-4}alkyleneN(R^a)_2$, $NR^aC(=O)R^a$, $NR^aC(=O)N(R^a)_2$, $N(SO_2C_{1-4}alkyl)_2$, $NR^a(SO_2C_{1-4}alkyl)$, $SO_2N(R^a)_2$, OSO_2CF_3, $C_{1-3}alkylenearyl$, $C_{1-4}alkyleneHet$, $C_{1-6}alkyleneOR^b$,

C_{1-3}alkyleneN$(R^a)_2$, C(=O)N$(R^a)_2$, NHC(=O)C_1-C_3alkylenearyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, arylOC_{1-3}alkyleneN$(R^a)_2$, aryloC(=O)R^b, NHC(=O)-C_{1-3}alkyleneC_{3-8}heterocycloalkyl, NHC(=O)C_{1-3}alkylene-Het, OC_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^b, C(=O)C_{1-4}alkyleneHet, and NHC(=O)haloC_{1-6}alkyl;

or R^1 and R^2 are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^3 is selected from the group consisting of optionally substituted hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-4}alkylenecycloalkyl, C_{2-6}alkenyl, C_{1-3}alkylenearyl, arylC_{1-3}alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N$(R^a)_2$, C(=S)N$(R^a)_2$, SO_2R^a, SO_2N$(R^a)_2$, S(=O)R^a, S(=O)N$(R^a)_2$, C(=O)N$R^a$$C_{1-4}$-alkylene$OR^a$, C(=O)N$R^a$$C_{1-4}$alkyleneHet, C(=O)$C_{1-4}$alkylenearyl, C(=O)$C_{1-4}$alkyleneheteroaryl, C_{1-4}alkylenearyl optionally substituted with one or more of halo, SO_2N$(R^a)_2$, N$(R^a)_2$, C(=O)OR^a, N$R^a$$SO_2CF_3$, CN, NO_2, C(=O)R^a, OR^a, C_{1-4}alkyleneN$(R^a)_2$, and OC_{1-4}alkyleneN$(R^a)_2$, C_{1-4}alkyleneheteroaryl, C_{1-4}alkyleneHet, C_{1-4}alkylene-C(=O)C_{1-4}alkylenearyl, C_{1-4}alkyleneC(=O)C_{1-4}alkylene-heteroaryl, C_{1-4}alkyleneC(=O)Het, C_{1-4}alkyleneC(=O)-N$(R^a)_2$, C_{1-4}alkyleneOR^a, C_{1-4}alkyleneNR^aC(=O)R^a, C_{1-4}alkyleneOC_{1-4}alkyleneOR^a, C_{1-4}alkyleneN$(R^a)_2$, C_{1-4}alkyleneC(=O)OR^a, and C_{1-4}alkyleneOC_{1-4}alkylene-C(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-3}alkyleneN$(R^c)_2$, aryl, arylC_{1-3}alkyl, C_{1-3}alkylenearyl, heteroaryl, heteroarylC_{1-3}alkyl, and C_{1-3}alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

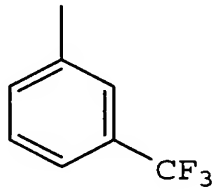
R^b is selected from the group consisting of hydrogen, C_{1-6}alkyl, heteroC_{1-3}alkyl, C_{1-3}alkyleneheteroC_{1-3}alkyl, arylheteroC_{1-3}alkyl, aryl, heteroaryl, arylC_{1-3}alkyl, heteroarylC_{1-3}alkyl, C_{1-3}alkylenearyl, and C_{1-3}alkyleneheteroaryl;

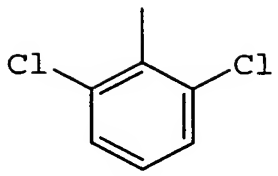
R^c is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, aryl, and heteroaryl;

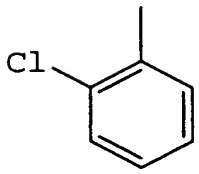
Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, and optionally substituted with C_{1-4}alkyl or $C(=O)OR^a$;

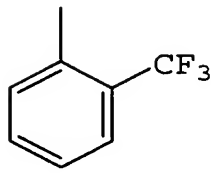
and pharmaceutically acceptable salts and solvates thereof,

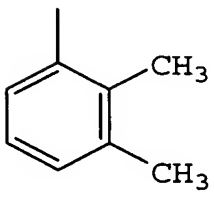
with the provisos that if X-Y is CH_2S, then R^3 is different from

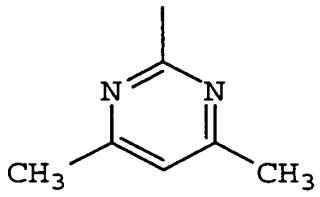



Cl
Cl


Cl


CF3


CH3
CH3

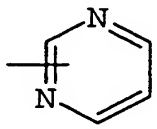


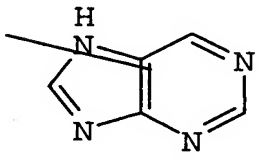
and if X-Y is CH_2S, then R^3 is different from $-CH_2CH(OH)CH_2OH$ substituted phenyl.

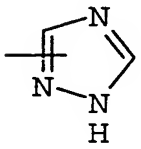
5. The compound of claim 4 wherein X is selected from the group consisting of CH_2, CH_2CH_2, $CH=CH$, $CH(CH_3)$, $CH(CH_2CH_3)$, $CH_2CH(CH_3)$, and $C(CH_3)_2$.

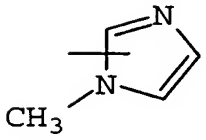
6. The compound of claim 5 wherein Y is selected from the group consisting of null, S, and NH.

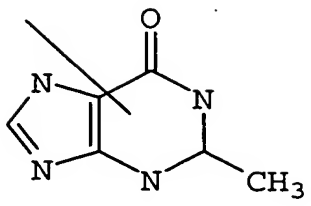
7. The compound of claim 5 wherein the A ring system is selected from the group consisting of











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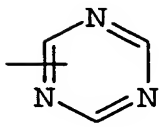
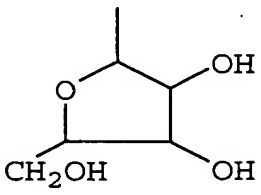
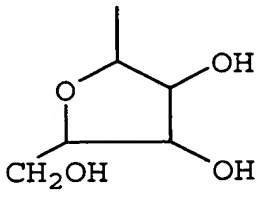


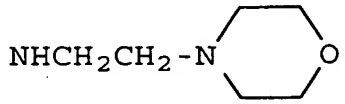
8. The compound of claim 7 wherein the A ring system is substituted with one to three substituents selected from the group consisting of $N(R^a)_2$, halo, C_{1-3}alkyl, $S(C_{1-3}alkyl)$, OR^a, and



9. The compound of claim 8 wherein the A ring system is substituted with one to three substituents selected from the group consisting of NH_2, $NH(CH_3)$, $N(CH_3)_2$, $NHCH_2C_6H_5$, $NH(C_2H_5)$, Cl, F, CH_3, SCH_3, OH, and



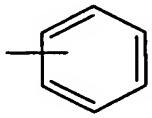
10. The compound of claim 5 wherein R^1 and R^2, independently, selected from the group consisting of hydrogen, OR^a, halo, C_{1-6}alkyl, CF_3, NO_2, $N(R^a)_2$, NR^aC_{1-3}alkyleneN$(R^a)_2$, and OC_{1-3}alkyleneOR^a. Specific substituents include, but are not limited to, H, OCH_3, Cl, Br, F, CH_3, CF_3, NO_2, OH, $N(CH_3)_2$,

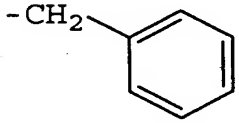


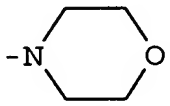
and $O(CH_2)_2OCH_2C_6H_5$, or R^1 and R^2 are taken together to form a five- or six-membered ring.

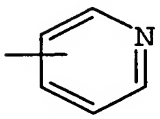
11. The compound of claim 5 wherein R^3 is selected from the group consisting of C_{1-6}alkyl, aryl, heteroaryl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, $C(=O)OR^a$, C_{1-4}alkyleneHet, C_{1-4}alkylenecycloalkyl, C_{1-4}alkylenearyl, C_{1-4}alkyleneC(=O)C_{1-4}alkylenearyl, C_{1-4}alkyleneC(=O)OR^a, C_{1-4}alkyleneC(=O)$N(R^a)_2$, C_{1-4}alkyleneC(=O)Het, C_{1-4}alkyleneN$(R^a)_2$, and C_{1-4}alkyleneNR^{a}C(=O)R^a.

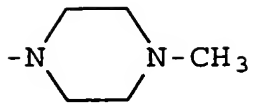
12. The compound of claim 5 wherein R^3 is selected from the group consisting of OR^a, C_{1-6}alkyl, aryl, heteroaryl, NO_2, $N(R^a)_2$, $NR^aC(=O)R^a$, $C(=O)OC_2H_5$, $CH_2CH(CH_3)_2$,

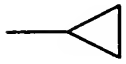


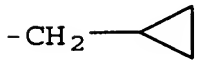


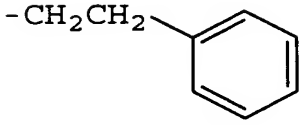


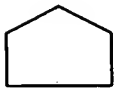












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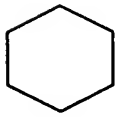
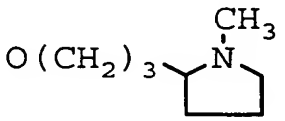


13. The compound of claim 4 wherein R^3 is substituted with a substituent selected from the group consisting of halo, OR^a, C_{1-6}alkyl, aryl, heteroaryl, NO_2, $N(R^a)_2$, $NR^aSO_2CF_3$, $NR^aC(=O)R^a$, $C(=O)OR^a$, $SO_2N(R^a)_2$, CN, $C(=O)R^a$, C_{1-4}alkyleneN$(R^a)_2$, OC_{1-4}alkyleneC$\equiv$CR^a, OC_{1-4}alkyleneC$(=O)N(R^a)_2$, OC_{1-4}alkylenearyl, OC_{1-4}alkyleneheteroaryl, OC_{1-4}alkyleneHet, OC_{1-4}alkyleneN$(R^a)_2$, and N$(R^a)C_{1-4}$alkyleneN$(R^a)_2$.

14. The compound of claim 4 wherein R^3 is substituted with a substituent selected from the group consisting of Cl, F, CH_3, $CH(CH_3)_2$, OH, OCH_3, $OCH_2C_6H_5$, $O(CH_2)_3N(CH_3)_2$, $OCH_2C\equiv CH$, $OCH_2C(=O)NH_2$, C_6H_5, NO_2, NH_2, $NHC(=O)CH_3$, CO_2H, and $N(CH_3)CH_2CH_2N(CH_3)_2$, and



15. The compound of claim 4 selected from the group consisting of:
2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;
2-(1-(2-amino-9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;
2-(1-(2-fluoro-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(1-(2-amino-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-5-methyl-3-{2-(2-(1-methylpyrrolidin-2-yl)-ethoxy)-phenyl}-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylamino-propoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;
2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-ynyloxyphenyl)-3H-quinazolin-4-one; and
2-{2-(1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-quinazolin-3-yl]-phenoxy}-acetamide.